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FINAL ENVIRONMENTAL ASSESSMENT

VALLEY INVESTMENT INITIATIVE FOR EXISTING AND EXPANDING CUSTOMERS

Tennessee Valley Authority Service Area

PREPARED BY:
TENNESSEE VALLEY AUTHORITY

OCTOBER 2008

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FINAL ENVIRONMENTAL ASSESSMENT

VALLEY INVESTMENT INITIATIVE FOR EXISTING AND EXPANDING CUSTOMERS TENNESSEE VALLEY AUTHORITY SERVICE AREA

TENNESSEE VALLEY AUTHORITY

OCTOBER 2008

The Proposed Decision and Need

Economic development is a core component of the Tennessee Valley Authority (TVA) mission and current strategic plan. When performed in conjunction with energy efficiency, demand reduction, and rates with price signals that encourage off-peak energy use, economic development is beneficial to both the TVA service area (hereinafter referred to as the Valley) communities and the TVA power system. Economic development helps keep rates low for all ratepayers, provides for quality jobs, and attracts new investments.

TVA is proposing to implement an economic development program, the Valley Investment Initiative for Existing and Expanding Customers (VIIE), which is designed to increase the number and quality of jobs in the Valley in a manner that is not harmful to the power system. TVA has traditionally utilized a number of rate products that contained discounts for, among other things, economic development activities, including Economy Surplus Power (ESP), Variable Priced Interruptible Power (VPI), Limited Interruptible Power (LIP), and Limited Firm Power (LFP). The benefits of these programs are realized through reduced power rates to participating companies, but they do not necessarily recognize the value of an existing company to the power system. The TVA Board in its *2007 Strategic Plan* (TVA 2007a) and *2008 Environmental Policy* (TVA 2008) refocused TVA efforts on providing clean, reliable, and affordable energy, sustainable economic development, and proactive environmental stewardship. This Board direction and current conditions require a more targeted approach to fostering economic development than current rate products offer. Programs such as the proposed VIIE recognize and reward desirable behaviors such as continued capital investment in the Valley, employment of workers with above-average wages, energy-efficient operations, and load characteristics that complement the TVA system including avoidance of heavy power use during peak-load periods. To achieve this greater focus, TVA is phasing out the above-mentioned rate products. ESP has already been terminated, and the rest are scheduled for termination at the end of the 2009 fiscal year. TVA is also considering phasing out the Enhanced Growth Credit (EGC) Program.

Background

In the past, TVA has supported economic development in part by offering attractive rate products to qualified customers. Historically, products such as ESP, VPI, LIP, and LFP at one time or another have all been effective tools for promoting industrial development by providing lower-cost power to eligible customers. In addition, TVA has encouraged industrial and economic growth through credit programs. EGC, which has been in place since 1994, provides an economic development incentive by applying substantial credits on the power bills of qualifying businesses that locate or expand in the Valley. Qualifications

include meeting a minimum additional load requirement of 100 kilowatts (kW) per year. Under the current EGC Program, customers may receive these credits for terms of four or eight years. The EGC Program has been a successful tool in recruitment and promoting load growth among existing customers throughout the Valley; however, the conditions in the energy marketplace are now much different from when the program was introduced. About half of the EGC participants are new customers, and half are expanding customers.

TVA is also considering a program for new customers. The features of this program are still being formulated. Potential impacts of this program, including any cumulative impacts with the proposed VIIE, will be addressed when these features are better defined and TVA is nearer to proposing such a program for new customers.

In the past, TVA has had a surplus of generating capacity, and the cost of fuel was low. After years of steady growth during which TVA added little new generation capacity, the recent sharp rises in fuel costs and increasing concerns about global warming have caused TVA, like other utilities, to move from promoting load growth to a demand-side management approach that emphasizes reducing peak energy use and focuses on energy efficiency. New sources of power will be from cleaner generation technologies including nuclear, clean coal, and renewable energy sources. TVA's economic development strategy is also evolving. Current conditions require a more targeted approach, one that recognizes and rewards desirable corporate behavior, such as continued capital investment in the Valley, employment of workers with above-average wages, energy-efficient operations, and load characteristics that complement the TVA power system.

Other Environmental Reviews and Documentation

- ***Energy Vision 2020, Integrated Resource Plan and Final Programmatic Environmental Impact Statement*, 3 volumes (TVA 1995)**
  This environmental impact statement (EIS), known as the Integrated Resource Plan (IRP) EIS, includes an assessment of various energy-efficiency, load-management, and rate options. It is incorporated by reference into this environmental review.

- ***Public Utility Regulatory Policy Act Standards for Energy Conservation and Efficiency Environmental Assessment* (TVA 2007b)**
  This environmental assessment (EA) addresses the effects on air quality and socioeconomics from implementing smart metering and net metering, two demand-side management tools. Because the proposed VIIE would result in similar effects, the *Public Utility Regulatory Policy Act* (PURPA) standards EA is incorporated by reference into this environmental review.

Alternatives

Two alternatives—No Action and Action—are considered. Under the No Action Alternative, TVA would continue for some period to offer products embedded in rates that pay flat credits solely for new load growth. These rate products are currently being phased out because they no longer align with the goals of TVA's *2007 Strategic Plan* and *2008 Environmental Policy*. No new incentive programs would be offered. The No Action Alternative would not satisfy the stated purpose and need for targeted economic development accomplished in concert with energy efficiency and TVA's load-management efforts as described above.

Under the Action Alternative, TVA would implement the VIIE Program and continue phasing out the above-mentioned economic development programs (i.e., ESP, VPI, LIP, and LFP). In general, the existing programs have offered a reduced power rate to companies based solely on their power system profile. Under the new program, benefits would be less dependent on a company's power-use statistics and more dependent on its economic characteristics. Participants would be recommended by their electricity supplier and meet a list of minimum qualifications. The qualification and award criteria would primarily encourage above-average wages, job creation/retention, and sustainable capital investment as well as higher load factors, noncoincident power use, and energy efficiency. The benefit for each participant would be capped at a percentage of the company's annual power bill. Each VIIE contract would commit TVA to make annually decreasing incentive payments for up to eight years. Awards would be paid to participating customers who have demonstrated that they are meeting periodic benchmarks. As a result, TVA would expect to see growth and retention of higher-wage jobs and an increase in annual capital investment by participating companies.

The details of the VIIE Program are provided in Appendix 1. The program would provide benefits to existing customers who are modernizing, who are increasing their longevity in the Valley, or who are growing. It seeks to direct growth in ways that benefit the power system. In general, this program would be more difficult to qualify for than existing incentive programs, but would be offered to a broader range of firms including some nonmanufacturing sectors. Among other things, qualifying companies would be required to make a minimum average annual capital investment of 5 percent of book value per year over a five-year period, maintain a minimum of 25 jobs and a relatively stable workforce, and have a minimum peak load of 250 kW. Companies with poor economic or power system profiles or those who do not choose locations based upon rates or incentive benefits (e.g., large chain store companies, government facilities, hospitals) would be excluded from the program.

The level of benefits available to each participating company would be determined using a matrix-based scorecard that simultaneously factors both the power system and economic value of existing customers (Appendix 1, Exhibit B). Each company can earn up to 100 points. The majority of points—65 percent—measure economic value, and 35 percent measure power system benefits, including energy efficiency and a reduction in peak-load energy use. A maximum benefit or program factor, anticipated to be around 25 percent once the program is fully operational, would be established annually to manage the budget and respond to economic trends. Monthly payouts would be calculated by multiplying the participant's total annual power bill by the program factor and the matrix score (as a percent of 1) and then dividing by 12 months. The benefit amount would decline by 12.5 percent per year to zero. VIIE would be offered to existing and expanding customers on a first-come, first-served basis, with awards being limited by available program funding.

VIIE represents an innovative approach to economic development for TVA, and predicting program outcomes involves substantial speculation. TVA intends to monitor the progress of the VIIE Program by accumulating information about the actual activities of participating firms. Should the program change or expand outside of the scope of this EA, or should unexpected environmental effects occur, TVA would supplement this review as appropriate.

Affected Environment, Evaluation of Impacts, and Comparison

The proposed program is intended to encourage retention and growth of higher-wage jobs in the Valley, reinvestment, sustainable business operation practices, and noncoincident power use by rewarding participants for these behaviors. VIIE is expected to replace economic development rate products that have been focused primarily on load growth. Under the No Action Alternative, while these rate products would be phased out, EGC would be continued. Without these rate products, TVA's ability to influence the growth and retention of jobs would be lessened. The net effect may be a decrease in TVA's contribution to economic growth in the Valley. Continuation of EGC as currently designed could incrementally increase the need to either purchase peak power or generate peaking power using expensive power sources such as combustion turbines. Projections for load growth and air emissions in the IRP EIS (TVA 1995) would continue to bound potential air quality effects of the No Action Alternative.

Based on experience with the existing economic development programs, TVA estimates that approximately 70-80 customers would apply to VIIE annually. This includes annually about 10-15 nonmanufacturing firms with peak power levels above 250 kW and 65 companies that are currently eligible to become EGC participants. VIIE would be available to a broader range of companies than the old programs including some nonmanufacturing companies such as couriers and messengers, warehousing and storage, publishing, broadcasting, telecommunications, and data processing companies.

TVA estimates the pool of customers eligible for VIIE to be fewer than 2,400 businesses. These firms employ approximately 5 percent of the workforce in the Valley. Wages of these workers account for almost 6 percent of total earnings. Eligible customers would account for about 8.5 percent of TVA electricity sales. Due to budgetary constraints, the program is not expected to exceed 350 to 400 participants in any given year. Therefore, the program is expected to affect less than 1 percent of the workforce in the Valley and about 1.4 percent of TVA's power load.

VIIE targets economic growth and energy-use behaviors including efficiency and time of use. Although the program would reward companies for noncoincident load growth and energy efficiency, it is primarily an economic development tool. As stated above, 65 percent of the program scorecard on which awards would be based is focused on economic value.

In general, the Action Alternative should benefit the regional economy by promoting higher-wage jobs, job retention, and reinvestment. However, because of the variability in the way participating companies would be able to earn awards, it is difficult to estimate effects. A company that plans to add many high-wage jobs and to reinvest at a rate of 10 percent of revenue could qualify for a 65 percent payout without earning any points from energy efficiency or load factor. Likewise, a company with a very low coincident load factor, high industry multiplier, and plans to invest in energy efficiency at a rate of 19 percent could earn a 50 percent payout without earning points from new/retained jobs or wages. Given the potential size of the program relative to the regional economy, the potential for noticeable adverse environmental effects from the economic benefits would be low.

Because VIIE has the potential to affect energy-use behaviors, there is some potential for minor impacts to air quality. In as much as the proposed program would promote energy efficiency, it could slow the regional rate of base load growth. This could benefit air quality by slightly slowing the need to operate base load facilities at higher capacity factors or

adding new generation sources. However, currently it appears likely that TVA will meet future base load capacity needs with more nuclear generation, which has minimal adverse air emissions from operations. The coincident load factor item in the VIIE scoring matrix is designed to encourage participants to shift their demand for electricity from peak to off-peak times. As described in the PURPA standards EA (TVA 2007b), the main effect of such a change would be a slightly reduced need for TVA to construct, purchase, or operate peaking power generation units and a slightly greater need for and use of intermediate or base load generating capacity. On the TVA system, intermediate capacity would largely be produced by coal-fired generating units. Base load generation would be a mix of nuclear (30 percent) and coal-fired generation (60 percent). Peaking power would most likely be produced by cleaner burning gas-fired combustion turbines. TVA 2007b concluded that a shift from peak to off-peak power would result in a small and minor increase in fossil fuels emissions, well within the normal operating variability exhibited for the TVA system on a year-to-year basis. This conclusion would apply to implementation of VIIE as well, especially since the program would have a minor effect on at most 1.4 percent of TVA's power load. In addition, the energy-efficiency components of VIIE could offset any effects from load shifting.

As stated earlier, VIIE is primarily an economic development program, with the majority of point value in the scoring matrix focused on economic development. Due to the relatively small size of this program in the context of the overall Valley economy and TVA's overall energy load, the potential environmental effects from implementing it are expected to be small and likely not noticeable.

Compared to the No Action Alternative, the Action Alternative would tend to promote retention and creation of higher-wage jobs and more capital investment in eligible existing and expanding companies. It would encourage energy efficiency and a shift from peak to off-peak power usage among participating companies and could slightly reduce total load growth.

Commitments

No mitigation or environmental commitments have been identified as necessary for the implementation of this program.

Preferred Alternative

TVA's preferred alternative is the Action Alternative.

TVA Preparers

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Attachment

Appendix 1. Valley Investment Initiative for Existing and Expanding Customers

Glossary

base load	The minimum amount of electric power delivered or required over a given period of time at a steady rate.
capacity factor	The ratio of the actual output of a power plant over a period of time and its output if it had operated at full capacity during that time period.
coincident load factor	The percentage of time a power customer's peak load occurs at the same period as the power system's peak load.
demand-side management	The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand.
energy efficiency	Refers to programs aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the level of service provided.
load	The amount of electric power delivered or required at any specific point or points on a power system.
load factor	The ratio of average electric load to peak load, usually calculated over a one-hour period.
load growth	An increase in the amount of required load that occurs over time at any specific point or points on a power system.
noncoincident power use	Occurs when a power customer's peak power use occurs at a different time than the power system's peak load.
peak power	The maximum power load during a specified period of time; on peak and off peak refer to intervals that either coincide with or are offset from the peak.
power system profile	The compiled characteristics of power use across the entire TVA power system over time.
rate products	Various prices for power offered by TVA other than the standard power rate; in this case, designed to provide a discounted price of power compared to the standard rate. A rate product may be applied as a credit to the standard rate or as a wholly separate pricing structure from the standard rate.

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Appendix 1
Valley Investment Initiative for Existing and Expanding Customers

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Valley Investment Initiative for Existing and Expanding Customers (VIIE)

Qualification Criteria

- Minimum capital investment – average annual investment of 5% per year for five years toward facilities, processes, and/or product compared to the plant's book value (must make at least 5% in Year 1 to qualify).
- Minimum number of existing jobs – 25 Full-Time Equivalent positions for each of the previous twelve months.
- Minimum existing load – 250 kW peak demand for each of the previous twelve months.
- Customer may not be a "Nonconforming load" (as defined in the May 2, 2007 Board memorandum or as that term may be redefined by the Board from time to time).
- Customer may not be an excluded customer type (see Exhibit A).
- No customer projecting the elimination of or eliminating 50% or more of their existing workforce during the evaluation period is eligible to participate in the program.
- Customers must have the following contractual arrangements:
    - purchase firm power with standard rate product overlays,
    - power contract duration longer than VIIE contract period, and
    - power contract with a distributor who has not given notice of contract termination.
- Customer must have electrical facilities capable of tracking demand sufficient to calculate program metrics.
- No customer may participate in the Enhanced Growth Credit program and the VIIE programs simultaneously.
- Customer must be financially sound.

Preferred Program Criteria and Scoring Matrix Categories*

- Capital Investment
- Energy Efficiency
- Jobs Retained and/or Created
- Wages (as a percent of the county average wage)
- Industry Multiplier
- Annual Load Factor
- Coincident Load Factor

*Scoring Matrix and definitions are in Exhibit B

Operating Parameters

- Funding for the VIIE program occurs annually with contractual commitments carrying forward to subsequent budget years.
- Power distributor submits application to TVA for distributor-served, end-use customers with appropriate projections toward the program's metrics.
- TVA Industrial Marketing and Account Management submits application for directly-served customers with appropriate projections toward the program's metrics.
- Customer projections will be used to determine the customer's program eligibility, matrix scoring, funding amounts, the contractual timeline, and annual milestones.

- A Program Factor will be established annually and used as a multiplier or dollar value to cap the funding amount for each VIIE.
- The Scoring Matrix is evaluated and adjusted annually providing consistent valuation to economic and system benefits of the customer.
- Each program participant will enter into a VIIE contract.
- The VIIE award will have a contract period, evaluation period, and payment period. The periods are:
    - The Contract Period is eight years and encompasses both the Evaluation and Payment Periods.
    - The Evaluation Period is the first five years of the Contract Period, and it is the period of time during which the customer is responsible for meeting predetermined annual milestones and TVA evaluates the customer's attainment of those milestones.
    - The Payment Period is eight years during which payments will occur in declining amounts. Payments may be subject to a true-up provision at any time during this period.
- A clawback provision will be included in each VIIE contract and may be enforced at any point during the contract period for the customer's failure to satisfy qualification criteria, failure to meet contractual milestones, or other breach of obligations.
- Each customer will provide annual, certified reports demonstrating annual performance toward contractual milestones and compliance with qualification criteria.
- Awards are administered through the monthly power bill and may be trued-up based upon annual reports and performance toward the contractual milestones.
- All information provided by customers is subject to review and verification by TVA and the applicable power distributor.
- Payments will not be made in advance of the program's contractual term and retroactive payments for past performance will not be considered.
- Power distributors must maintain load data sufficient for TVA to calculate program needs.
- Incentives will cease for any company falling below the minimum program qualifications during the contract term or for breach of any contract requirement.
- Customers may receive program benefits from more than one VIIE contract at a time provided:
    - the program qualification criteria are met at increments higher than those included in active evaluation periods and existing contract(s),
    - matrix scoring will apply only for values incrementally higher than those included in active evaluation periods and existing contract(s),
    - total incentive amounts of all contracts do not exceed the product of the program factor and the customer's most recent annual revenue, and
    - a new VIIE contract has not been executed in the previous 12 months.

Program Funding

Funding for the VIIE program occurs annually. Contractual commitments will carry forward to subsequent budget years. When the proposed VIIE budget is submitted to the Board for approval annually, the Board will also receive a statement of VIIE committed funds for all future fiscal years in which funds have been committed.

Maximum VIIE Amounts

The maximum award amount for any VIIE contract is the product of the customer's most recent annual revenue, matrix score, and the program factor.

Annual revenue is defined as demand, energy, and customer charge revenue paid to TVA or a power distributor over the previous twelve months. Revenues generated through the Fuel Cost Adjustment, power factor charges, facilities rental, or other means will be excluded from VIIE calculations. Credits and overlays provided by TVA to the customer (e.g., interruptibility credits) will lower the annual revenue amount eligible for the VIIE program.

The program factor will be established annually based upon available budget and anticipated program demand. The program factor amount will be provided in each contract, and it will remain the customer's program factor for the life of the contract. VIIE award amounts may not exceed the contractual program factor during any year of the payment period. If the scheduled VIIE payment to a customer is higher than the contractual program factor, then the payment amount over the program factor limit will be deducted from scheduled payments. A program factor will be set each fiscal year, and it may be expressed as a percentage, dollar value, or both.

Determining Eligibility and Calculating Award Amounts

Each customer desiring to participate in the program will provide up to five years of projected performance toward the Qualification Criteria and Scoring Matrix variables. These projections will be aggregated and used to determine the customer's program eligibility, matrix scoring, and award amount. These projections will also set the annual, contractual milestones, and the timeline of these projections will become the evaluation period.

Matrix scoring, the customer's most recent annual revenue, and a program factor are used to determine award amounts. The program factor caps the maximum amount of funding available based upon the customer's annual revenue. The matrix scoring adjusts this amount further. The formula for the first year's monthly payment is:

$$\frac{[\text{Customer's Annual Revenue} \times \text{Program Factor \%} \times \text{Matrix Score \%}]}{\text{12 months}}$$

Budgetary Limitation and Customer Waiting List

The VIIE will be offered to customers on a first-come, first-served basis. In instances where remaining budgets are insufficient to fully fund the calculated award for an individual customer, a partial amount may be awarded to avoid budgetary overages. In instances where the VIIE budget has been expended during the fiscal year, a queue will be created, and when funding becomes available, they will be distributed to the queue on a first-come, first-served basis.

Stacking of VIIE and Multiple Contracts

Customers may receive program benefits from more than one VIIE contract at a time. The customer may receive incentives from multiple contracts as long as:

- the VIIE qualification criteria are met at incremental rates higher than those included in active evaluation periods and existing contract(s),
- matrix scoring will only apply for amounts incrementally higher than those included in active evaluation periods and existing contract(s), and
- total payment amounts from all contracts do not exceed the Program Factor. This may result in not paying the full value of contracts that cause incentive amounts to rise above the Program Factor.

In situations where multiple contracts are in place with differing Program Factors, the highest Program Factor provided in any of the active contracts shall be used to determine the maximum stacked award available. The highest annual revenue provided in any of the active contracts shall also be used in the calculation of the maximum stacked award amount available.

EXHIBIT A

Excluded Customer Types

The following industry types, descriptions, and high-level NAICS codes are generally to be excluded due to less favorable economic profiles, negative system impacts, or location/expansion decision processes that are not sensitive to economic development programs. A customer with an excluded NAICS code may participate in the program if the following requirements are met:

1. Sub-sector multiplier and their average wage exceed the Valley average,
2. Documentation demonstrating economic development support and/or incentives being provided by state and/or local economic development partners, and
3. The customer otherwise meets project qualification criteria and programmatic intent.

Sector	Description of Principal Activities	Related NAICS	Basis for Exclusion
Agriculture, Forestry, Fishing, and Hunting	Establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or other natural habitat	11	Low average wage ($24,132) and low employment multiplier (2.1); low electricity usage
Mining	Establishments that extract naturally occurring mined solids, liquid minerals, and gases; includes operations customarily performed at the mine site	21	Location and output tied to presence of natural resources; low electricity usage
Utilities	Establishments engaged in the provision of electric power, natural gas, steam supply, water supply, and sewage removal; excludes waste management	22	Level of service dictated by local demand
Construction	Establishments engaged in the construction of buildings or engineering projects	23	Location and level of activity tied to local demand; low employment multiplier (2.1); low electricity usage
Retail Trade	Establishments engaged in retail merchandising	44-45	Location and level of activity tied to local demand; low average wage ($25,567); low employment multiplier (1.5)

Sector	**Description of Principal Activities**	**Related NAICS**	**Basis for Exclusion**
Transportation	Industries providing transportation of passengers and cargo via air, rail, water, road, or pipeline; includes support activities such as airport operations and equipment maintenance Postal Service, Couriers and Messenger	48 491, 492	Location and level of activity dependent upon localized customer demand; low electricity usage
Real Estate and Rental and Leasing	Establishments primarily engaged in renting or leasing their own assets or managing, selling, renting, or buying real estate for others	53	Location and level of activity tied to local demand
Administrative and Support and Waste Management and Remediation Services	Establishments performing routine support activities for the day-to-day operations of other organizations; includes office, facilities, and employment services, as well as call centers, credit bureaus, and convention bureaus; and waste collection, disposal, treatment, and remediation	56	Location and level of service tied largely to local demand; low average wage ($29,332); low employment multiplier (1.5/2.4)
Educational Services	Private or public establishments that provide instruction and training	61	Location and level of service tied largely to local demand; low employment multiplier (1.5)
Health Care and Social Assistance	Establishments providing health care and social assistance for individuals	62	Location and level of service tied largely to local demand; low employment multiplier (2.1/1.9)
Arts, Entertainment, and Recreation	Establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons	71	Location and level of service tied largely to local demand; low average wage ($29,950); low employment multiplier (1.6)
Accommodations and Food Service	Establishments providing customers with lodging and/or preparing meals and beverages for immediate consumption	72	Location and level of service tied largely to local demand; low average wage ($15,701); low employment multiplier (1.6)
Other Services	Establishments engaged in providing miscellaneous services, including equipment repair, religious activities, advocacy, parking services, etc.	81	Location and level of service tied largely to local demand; low average wage ($26,923); low employment multiplier (1.7)
Public Administration	Establishments of federal, state, and local government agencies that administer, oversee, and manage public programs and have executive,	92	Location and level of service not market-based

	legislative, or judicial authority		

EXHIBIT B

VIIE Scoring Matrix

Points	Avg. Annual Capital Investment % of total plant book value	Energy Efficiency		Jobs % of existing jobs added / retained	Wages % Above Average County Wage	Industry Multiplier	Annual Load Factor		CLF Peak Period Method	Points (+/-)
		Manuf.	Comm.							
1	5%	2%	2%		10%	1.5	65%		55%	-9
2	6%	4%	4%		12%	1.75	68%		60%	-8
3	7%	6%	6%		14%	2	70%		65%	-7
4	8%	8%	8%		16%	2.25	73%		70%	-6
5	9%	10%	10%	75% existing	18%	2.5	75%		75%	-5
6	10%	12%	12%	80% existing	21%	3	78%		80%	-4
7	11%	14%	14%	85% existing	23%	3.5	80%		85%	-3
8	12%	16%	16%	90% existing	25%	4	83%		90%	-2
9	13%	18%	18%	95% existing	27%	4.5	85%		95%	-1
10	14%	20%	20%	100%-Same as existing	29%	5 +	88 +%		100%	0
11	15%	22%	22%	Add 10%	31%				105%	1
12	16%	24%	24%	Add 15%	33%				110%	2
13	17%	26%	26%	Add 20%	35%				115%	3
14	18%	28%	28%	Add 25%	37%				120%	4
15	19% +	30%	30%	Add 30%	39%				125%	5
16				Add 35%	42%				130%	6
17				Add 40%	44%				135%	7
18				Add 45%	46%				140%	8
19				Add 50%	48%				145%	9
20				Add 55% +	50%+				150 +%	10
Max	15	15		20	20	10	10		+10 or -9	

Matrix Column 1: Average Annual Capital Investment as a Percent of Plant Book Value

Calculation is:

Total Cap. Inv. During Contract Term / Current Book Value / Contract Term

Matrix Column 2: Energy Efficiency Improvement

There are two options for energy efficiency improvements: process based improvements (primarily manufacturing and industrial customers) or building/shell improvements (primarily commercial customers).

Commercial Metric (Building/Shell)

- Energy efficiency in commercial facilities is somewhat homogenous and will be calculated by:
  - Evaluation of the percentage of improvement of kWh usage per square foot from year to year starting with a predetermined baseline
  - Electricity Usage, primarily kWh, gleaned from billing data
  - Square footage of the facility supplied by customer on an annual basis
  - Calculation is: ***kWh / Square Feet***

Manufacturing Metric (Industrial/Process)

- Energy efficiency in industrial facilities is normally very unique to each facility/process and is analyzed on a case-by-case basis.
- Each industrial customer will submit to TVA their current usage and energy efficiency measurement. Examples and calculations currently utilized include:
  - ***kWh / Plant Output*** (if include just electricity efficiency),
  - ***Annual kWh / earnings per employee,***
  - ***Btu / Plant Output*** (if include all energy sources), and
  - Other ***customized*** measures as agreed to by TVA and customer.

Matrix Column 3: Percent of Existing Jobs Added or Retained

The measure averages the number of full-time equivalent employees working at the end of each month to account for seasonality. Calculation is:

Current year's avg. of employees / Previous year's Avg. of employees

Matrix Column 4: Percent Above County Wage

The average wage is defined as the customer's total payroll (minus benefits) divided by the number of employees. This county average wage is the most recent wage information available by the Bureau of Labor Statistics for that specific county. The calculation is:

$$\frac{\textit{[Customer Avg. Wage - County Avg. Wage]}}{\textit{County Avg. Wage}}$$

Matrix Column 5: Industry Multiplier

Industry multiplier data available from Economic Modeling Specialists Inc. (EMSI), customized to represent that particular industry's economic impact within the Tennessee Valley rather than nationally.

Matrix Column 6: Annual Load Factor

The calculation for this category is:

$$\textit{Annual Load Factor} = \frac{\textit{Annual kWh}}{\textit{[peak kW x 8760 Hours]}}$$

Matrix Column 7: Coincident Load Factor (CLF)

The calculations for this category are:

$$CLF = \frac{\text{Customer's Annual Average Hourly Demand (kW)}}{\text{Customer's Average Hourly Demand during TVA Peak Period (kW)}}$$

$$\text{Customer's Annual Average Hourly Demand} = \frac{\text{Customer's Annual Sales (kWh)}}{\text{Annual Hours (8760)}}$$

Customer's Average Hourly Demand during TVA Peak Period is the customer's Average Hourly Demand (kW) for the months of July and August from 13:00:00 to 18:59:59 CPT.